

## REMARKS

Claims **1-16, 18, 20-22, and 24** were examined. Claim **1** has been amended and new claims **25, 26, and 27** have been added. Applicant thanks the Examiner for the continued allowability of claims **20-22** and **24**. No new matter has been presented.

## REQUEST FOR CONTINUED EXAMINATION

A request for continued examination (RCE) and the appropriate fee is submitted herewith. As such, entry of the above-described amendments is believed to be proper.

## EXAMINER INTERVIEW SUMMARY

A telephone interview was conducted on September 29, 2008 between the Examiner and Attorney of Record Joshua D. Isenberg. Certain proposed amendments to claims **1** and **10** were discussed in view of Furendal. No agreement was reached. The Examiner indicated that a Request for Continued Examination (RCE) would be required in order for the claim amendments to be considered.

## CLAIM 1 IS SUPPORTED BY ADEQUATE WRITTEN DESCRIPTION

Claims **1-9** were rejected under 35 USC 112, first paragraph for failing to comply with the written description requirement. The Applicant respectfully overcomes the rejections. The Applicant submits that the above-referenced amendment to claim **1** removes the feature objected to by the Examiner and replaces it with a feature for which there is adequate written description. As amended above, claim**1** recites “exposing the organic film to a vapor of a solvent for a period of time sufficient to render at least an outermost portion of the organic film insoluble in the solvent, wherein insolubility of the outermost portion results directly from exposure of the organic film to the vapor of the solvent.” Emphasis added. Support for this amendment can be found in the present application at page 3 lines 29-30 and in the example on page 4, lines 7-16 showing insolubility resulting directly from vapor exposure. As such, it is respectfully submitted that the rejection of claims **1-9** under 35 USC 112, first paragraph be withdrawn.

## CLAIM 1 IS ALLOWABLE OVER FURENDAL

Claims 1-9 were rejected under 35 USC 102(b) as being anticipated by US Patent No. 4,293,596 to Furendal et al. (hereinafter “Furendal”). Applicant respectfully overcomes the rejection.

As noted above, claim 1 recites exposing the organic film to a vapor of a solvent for a period of time sufficient to render at least an outermost portion of the organic film insoluble in the solvent, wherein insolubility of the outermost portion results directly from exposure of the organic film to the vapor of the solvent. All examples provided by Furendal fail to show that the insolubility of the resulting film is a direct result of exposure to solvent vapor. Instead, Furendal quite clearly relies on the dissolving capability of a solvent during solvent treatment as an aid to film formation. See col. 11, line 60 to col. 12, line 15. More specifically, Furendal teaches

The condition for film formation is, of course, that the solvent or solvent mixture can dissolve or swell the particles at the exposure temperature used so that the particles can flow together and form a continuous surface coating. The dissolving capability increases as the temperature is increased. A solvent can thus have insufficient dissolving capability at room temperature, but sufficient effect at some ten degrees higher temperature.”

See col. 11, lines 63 to col. 12, line 3.

Clearly, then, Furendal does not teach that exposure to solvent or solvent vapor will directly result in insolubility of the outermost portion of an organic film as set forth in claim 1. Indeed, Furendal’s statement “that the solvent can dissolve or swell the particles at the exposure temperature used so that the particles can flow together and form a continuous surface coating”, clearly teaches that the film remains soluble in the solvent during solvent vapor treatment. See col. 11 lines 63-65.

Furendal further describes that mere film formation is not the key to insolubility, but instead states “[i]n accordance with the foregoing, cross-linking gives improved solvent resistance.” See col. 8 lines 35-36. Thus, the improvement in Furendal is not a direct result of solvent exposure but instead, a result of heat generated chemical cross-linking or the like. More specifically, Furendal states that the cross-linking takes place during heating (see below), and it is the cross-linking that provides the solvent resistance (see col. 8 lines 13-14, 35-36). Furendal, explicitly states that “cross-linking must not take place until after the treatment with solvent.”

See col. 8, lines 28-29. Specifically, Example 16 states that, “The coating did not swell at all, which shows that cross-linking took place between the oxirane groups during the heat treatment after the solvent treatment.” See col. 27, lines 38-41. In addition, example 29 states that, “The coating swelled insignificantly, which shows that cross-linking took place between the oxirane and the carboxylic acid groups during the heat treatment after the solvent treatment.” See col. 33, lines, 27-30.

Although Furendal teaches that efforts may be taken to optimize heat economy, there is no suggestion that the cross-linking via heating or a catalyst is removed (Col. 12, lines 12-31). The use of a catalyst shows that assistance is required for the cross-linking of Furendal to occur (either by catalyst or by heat). Mere exposure to vapor seems insufficient.

In the Advisory Action of August 20, 2007, the Office had presented that Furendal teaches that film formation is aided with or without heat while using the solvent in column 11, lines 60-65 (see page 3 lines 1-3 of that Advisory Action). Applicant notes that this textual citation is not relevant as the film at that point in the Furendal process is not insoluble. Applicant points out that the Furendal reference is at its core a reference regarding a painting method (see Col. 1, lines 1-2) and at Col. 11, lines 60-65 (in layman terms), the paint is still wet. The exposure to solvent is there to “dissolve or swell the particles at the exposure temperature used so that the particles can flow together and form a continuous surface coating.” Col. 11, lines 63-67. At that moment of vapor exposure, there is no imparting of insolubility. Reading further, Furendal proceeds to discuss various other solvents, and it is not until Col. 15, lines 20-43 that the reader would note that it is the drying/heating to a) remove solvent and b) promote cross-linking that hardens to form an insoluble coating. Mere solvent exposure for “film formation” in Furendal imparts no qualities of insolubility.

In summary, the Applicant submits that Furendal teaches forming a film of polymerizable monomer by coating a substrate with a dispersion containing monomers and a solvent; drying the dispersion by evaporating the solvent; forming a film by exposing the dried monomer to solvent vapor; and then cross-linking the film by heating or catalyst it to make it solvent resistant. The Applicant submits that by explicitly teaching that cross-linking to provide solvent resistance, that cross-linking must take place after vapor treatment and that heat treatment is used to accomplish cross-linking, Furendal does not teach and in fact teaches away from the invention as set forth in claim 1, which recites that insolubility of the outermost portion of an organic film “results

directly from vapor annealing without heat treating the organic film.” Based on the aforementioned, Claim 1 and its dependent claims are believed to be in condition for allowance.

### **CLAIM 10 IS ALLOWABLE OVER FURENDAL**

Claims 10-16 and 18 were rejected under 35 USC 103(a) as being obvious in view of Furendal. Applicant respectfully traverses the rejection.

#### **The combination of Furendal with skill in the art does not teach all the elements of claim 10.**

Claim 10 requires placing a solution containing an organic material and a first solvent on a substrate; evaporating the first solvent from the solution leaving an organic film on the substrate; annealing the organic film by exposing it to a vapor of a second solvent for a period of time sufficient to render at least an outermost portion of the organic film insoluble in the first solvent, wherein the first solvent and second solvent are the same solvent. As noted above, the example set forth at page 4, lines 7-16 of the present application clearly show that insolubility is directly resulting from film exposure to the vapor, and the resulting outer layer of the film is insoluble in the same solvent that provided the vapor.

For the reasons set forth above with respect to the rejection of claim 1, the Applicant submits that Furendal teaches forming a film of by coating a substrate with a dispersion containing monomers and a solvent, drying the dispersion by evaporating the solvent; forming a film by exposing the dried monomer to solvent vapor; and then cross-linking the film by heating or catalyst it to make it solvent resistant. The Applicant submits that by explicitly teaching a) that cross-linking provides solvent resistance, b) that cross-linking must take place after vapor treatment and c) that heat treatment or a catalyst and not the solvent vapor exposure is used to accomplish cross-linking, Furendal does not teach and in fact teaches away from the exposing an organic film to a vapor of a second solvent for a period of time “sufficient to render at least an outermost portion of the organic film insoluble in the first solvent” as set forth in claim 10.

Furthermore, the Applicant submits that, for the reasons set forth above with respect to the rejection of claim 1, Furendal in fact teaches away from “annealing the organic film by exposing it to a vapor of a second solvent... to render at least an outermost portion of the organic film insoluble in the first solvent” as set forth in claim 10. As discussed above, the Applicant

submits that Furendal teaches that the film remains soluble during solvent treatment and that either heat or a catalyst is necessary in order to make the film insoluble in the solvent.

Therefore, modifying Furendal to use the same solvent for film deposition and annealing would still not teach all the limitations of claim **10** since Furendal's vapor treatment step is not used to make the film insoluble. As such, a *prima facie* case of obviousness is not present with respect to claim **10**.

**Per MPEP 2143.01, the proposed modification cannot render the prior art unsatisfactory for its intended purpose.**

The Applicant notes that, according to MPEP 2143.01(V) “[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)”.

As discussed above with respect to claim **1**, the Applicant submits that Furendal explicitly teaches that cross-linking the film provides solvent resistance, that cross-linking must take place after vapor treatment and that heat treatment is used to accomplish cross-linking, Furendal does not teach and in fact teaches away from the invention as set forth in claim **10**. However, Furendal specifically requires that cross-linking must not take place until after treatment with solvent (Col. 8, lines 34-39). The Applicant further notes that Furendal teaches that *a condition for the invention* is that the polymer film will be dissolved. See col. 8, lines 35-37. The Applicant submits that this is a general teaching that applies to all of the embodiments of Furendal. Thus, any modification of Furendal that would lead to cross-linking during vapor treatment would result in premature cross-linking (and consequent premature insolubility of the film) and would defeat the purpose *of the invention* in Furendal. Thus, As such, for at least this additional reason a *prima facie* case of obviousness is not present with respect to claim **10**.

. In addition, claims **11-16** and **18** depend either directly or indirectly from claim **10** and recite additional features therfor. As such and for the same reasons set forth above, the Applicant submits that these dependent claims define an invention suitable for patent protection.

**Per MPEP 2144.04(II)(B), eliminating a prior art element or step while retaining its function is prima facie unobvious.**

According to MPEP 2144.04(II)(B) “Omission of an Element with Retention of the Element’s Function Is an Indicia of Unobviousness”. This section of the MPEP cites *in re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966). In that case the claims at issue were directed to a printed sheet having a thin layer of erasable metal bonded directly to the sheet wherein the thin layer obscured the original print until removal by erasure. The prior art disclosed a similar printed sheet which further comprised an intermediate transparent and erasure-proof protecting layer which prevented erasure of the printing when the top layer was erased. The claims were found unobvious over the prior art because although the transparent layer of the prior art was eliminated, the function of the transparent layer was retained since appellant's metal layer could be erased without erasing the printed indicia.

The Applicant submits that a similar situation is present in the current application. As noted above, Furendal teaches forming a film of by coating a substrate with a dispersion containing monomers and a solvent, evaporating the solvent, forming a film by exposing the dried coating to solvent vapor, and then cross-linking the film by heating or catalyst it to make it solvent resistant. In claims **1** and **10**, the step of heating or use of a catalyst to cross-link the film is implicitly eliminated, but its function (making the film insoluble in the solvent) is retained. Therefore, the Applicants submit that, for at least this additional reason, a prima facie case of obviousness is not present.

**NEW CLAIMS 25, 26 and 27**

New claim **25** depends from claim **1** and recites that “insolubility of the outermost portion results directly from exposure of the organic film to the vapor of the solvent without heat treating the organic film.” Claim **25** is believed to be allowable over the prior art for the reasons set forth above. New claims **26** and **27** depend from claim **10** and recite additional features therefor. As such, these claims are believed to be allowable over the prior art for the reasons set forth above. Claim **26** recites that “insolubility of the outermost portion results directly from vapor annealing.” Claim **26** is also believed to be allowable for the reasons set forth above with respect to claim **1**. Claim **27** recites that “insolubility of the outermost portion results directly from vapor annealing without heat treating the organic film.”

In addition, it is believed that the arguments set forth above apply *a fortiori* to claims 25 and 27 since Furendal teaches the use of heat treatment to cross-link the film.

## CONCLUSION:

For the reasons set forth above, the Applicant submits that all claims are allowable over the cited art and define an invention suitable for patent protection. The Applicant therefore respectfully requests that the Examiner enter the amendment, reconsider the application, and issue a Notice of Allowance in the next Office Action.

Respectfully submitted,

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